

## Guest Editorial

### Human Interactions Are Crucial for Sustainable Development

In the next few years it will become more important to face the fact that most cultures around the world have not found ways to create sustainable communities and regions. Perhaps we cannot address enough of the necessary factors on the long list, perhaps we do not have sufficiently effective technologies, or perhaps our skills in engineering public policies are too primitive. What is obvious is that we still conduct our lives so that the waste we generate is shipped somewhere "away"; costs are externalized to some payer other than the pollutant producer; and persistent toxic chemicals are found in the environment.

Human interactions in most geographic regions do not work as well as the feedback loops in ecosystems and homeostasis within a metabolic system. Permaculturist Bill Molison said that "the ecosystem is the teacher" (Molison 1988). Through *Holistic Resource Management*, Savory (1988) sought to bring an enormous array of natural forces and human tools to bear in ways that allow range land ecosystems to reach higher levels of productivity and stability. But the progress that has been made to date falls far short of the need. In the average county-sized unit (30 × 30 miles) of the United States or the world, the best that can be seen is isolated examples of low-polluting businesses and a few restorative economic activities that build and enhance the resource base. If we are willing to tackle the internal complexity of the proteome, we must not shrink from the search for democratic processes that will enhance human-to-human efforts for sustainable development.

A key reason to recognize the lack of progress is that we are exhausting the ways to protect humans and ecosystems. There is an ever lengthening list of chemicals and toxic factors that are produced in increasingly large quantities in industrialized countries. Consequently, the only way to reduce exposures at an acceptable cost seems to be to redesign regional and national economies so that hazardous factors are not generated in the first place.

NIMBY ("not in my back yard") reactions show us that people are concerned about things that pollute close to home. A larger question is, what kind of jobs do people want in their regions? Jobs using green technologies are about the closest things conceivable to a regional panacea; yet industrial development boards and economic development corporations seldom offer incentives to attract or create those kinds of jobs. Cultivating a green industry cluster should become a goal of economic development corporations.

In some regions of the world, methods to protect resources or at least forestall decline are being used with some success. Tuscany (Italy) and New Zealand have enlightened economies that protect, conserve, and restore the countryside in a manner that provides an optimistic and stable future. The Amish in the United States (e.g., Pennsylvania and Ohio) achieve a similar effect by carefully controlling many technology and social factors in the countryside of their farms and villages. Communities in these areas are largely meeting the classic definition of sustainable development—meeting the needs of the present generation while preserving the resource base for future generations.

The city of Curitiba, in Parana, Brazil, also deserves mention for extraordinary efforts at creating sustainability. As a provincial capital with a population of 2.2 million, Curitiba has systems of public transit, housing, food distribution, parks, and government that avoid many of the environmental ills of other cities around the world. The city has established the Green Exchange, which exemplifies Curitiba's penchant



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for solutions that are "simple, fast, fun, and cheap" (Hawken et al. 2000). As Neal Pierce, the columnist on local government said, Curitiba "... is benefiting from a flow of interconnected, interactive, evolving solutions" (Pierce 2000).

Although regional solutions are scarce, it is not necessary to look far to find progress at the micro level. West Texas A&M University in Canyon, Texas, has constructed a building that produces more energy from wind and solar power than it consumes. The excess is stored in an electrically powered van that is used for transport errands around the campus. That would seem to be a better form of research to fund than that aimed at fossil fuels or nuclear power. [A picture is available from the Alternative Energy Institute (2003)].

Regarding some of the major flows of materials, there is progress on the recycling of construction and demolition debris. The technique of deconstruction is emerging as a green business that uses what would otherwise be waste materials, conserves space in landfills, and has a built-in job-creation aspect. Deconstruction is the reverse of construction and dismembers and recycles up to 90% of the materials in a structure. When human labors supplant the demolition bulldozer, it creates jobs as well as sellable by-products from resources that are readily available.

When the new campus of the Lady Bird Johnson Wildflower Center was being constructed in Austin, Texas, the bidding process called for all materials that were normally hauled away to remain on the site. The soil and stone aggregates were reused to build berms to channel rain water toward the native species plantings. The wood chips from vegetation had to be stored on location for building the trails. A major payoff was that it was much cheaper than the usual method of hauling these materials away to the landfill. Moreover, contractors have continued the practice in bids for site preparation and landscaping throughout the region.

In the regional systems of governance, it is the human interactions at the regional level that do not work to prevent pollution and maintain the resource base. It is a well-known concept that there is no "waste" in wilderness ecosystems; everything decomposes and is reused, driven by renewable energy sources. But wilderness has no human interactions and no impacts from the human economic necessities of job creation, livable housing, income disparities, a health care system, schools, funding of the arts, and so on.

Biosphere II (University of Arizona 1999) proved that one particular approach to creating a bubble environment of human and ecosystem interaction in microcosm did not work. If humans could not create a functioning system in miniature, what hope is there for a working regional system? My answer to this question is that the norm should involve looking at the assets of the entire region. A region's heritage, ethnic influences, folk arts, churches and temples, agriculture, biological diversity, business organizations, landscape, youth, seniors, educational institutes, and climate are just a few factors that should be considered. For example, if the fine woods that are recovered from deconstructing houses and buildings are to be used in making profitable goods, a thriving community of furniture artisans, carpenters, and interior designers would be needed. Otherwise, the wood would be shipped out of the community to create the high value-added products elsewhere.

In seeking to build the social infrastructure with the full range of diversity, Harvard professor Robert Putnam stressed the importance of social capital. In *Better Together*, Putnam and Feldstein (2003) break the process down into “bonding” between people of similar backgrounds and “bridging” between diverse peoples. When these processes are used by groups to influence government policy, communities work better to serve their residents. “Environment and social solutions only emerge when local people are empowered and honored” (Hawken et al. 2000).

The U.S. Environmental Protection Agency (EPA) provides a wide-ranging resource on sustainable indicators on human and other social factors that are not often considered. Communities and regions that wish to measure whether factors such as crime, economic development, biodiversity, or pollution levels are increasing or decreasing can find links to several helpful sites with environmental, economic, and social indicators at the U.S. EPA’s Green Communities website (U.S. EPA 2003). Maintaining and enhancing social capital with many linkages and public participation is an important precursor to building viable, least-polluting communities.

As we find new knowledge through environmental health research, we need to share this information with those affected by means such as this journal and the community outreach and education programs of the extramural centers. We also need to strengthen our communication ties to regional and statewide economic planning groups.

For regional and national planners, the question will continue to be, How do we live on this land now so that we can live on this land indefinitely?

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### Note from the Editors: Reviewer Appreciation and Other News

Part of the very foundation of science rests on the generous and unselfish participation of fellow scientists in the peer-review process. Few never find the time; many frequently find the time; but some nearly always find the time to participate. We are deeply grateful for the countless hours of time spent by our reviewers.

*EHP* uses a two-tiered review process to achieve a fair and thorough evaluation of manuscripts. After a triage process in which papers are rated by the editors for possible outside peer review, three editorial review board members or ad hoc reviewers are identified to review each selected paper. We do allow authors to request that certain individuals not review a paper if there is a concern about potential bias. Relying heavily on the reviewers’ comments, the science editor then decides on the acceptability of the article.

One facet of our process that our reviewers truly appreciate is that they receive the review comments of the other participants. We feel that reviewers benefit from seeing the evaluations of others and that the process of sharing reviewers’ comments leads to a continual overall improvement in the peer-review process itself.

*EHP* needs a large pool of reviewers because of the wide range of subject areas covered by the journal. In fact, *EHP* has a database that lists thousands of scientists and their area of expertise. Over the years, many of these scientists have served as ad hoc reviewers. To ensure that we give appropriate recognition to

the many scientists who so selflessly give of their time, this year we have changed to a two-year cycle for editorial review board membership. Half of the standing board was rotated off in October. We thank those members who have left the board for their years of service. We welcome the newly appointed members and thank them for the years they have worked for *EHP* in obscurity. We look forward to welcoming the new board members at this year’s editorial board meeting in March in Baltimore, Maryland, in conjunction with the annual Society of Toxicology meeting.

One final note: *EHP* is making a major change in our publication system. As of 1 January 2004, *EHP* will become an open access journal. We will provide additional details soon.

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